

**WHAT WE CLAIM IS:**

1. A hydraulic pressure control device, comprising:  
a cylindrical valve body;  
at least one opening portion provided on the valve body;  
a spool valve disposed in the valve body and slidable along an inner surface of the valve body;  
at least one land portion provided at the spool valve and slidable along the inner surface of the valve body; and  
at least one recess provided at an edge of the land portion of the spool valve;  
wherein cross-sectional opening area between the recess and the inner surface of the valve body continuously changes in sliding direction of the spool valve.
2. A hydraulic pressure control device according to claim 1, wherein the cross-sectional opening area between the recess and the inner surface of the valve body is continuously decreased in sliding direction of the spool valve from the edge portion of the land portion.
3. A hydraulic pressure control device according to claim 1, wherein the cross-sectional opening area of the recess is formed to have a proportional relationship between flow quantity of a hydraulic fluid and moving distance of the spool valve.
4. A hydraulic pressure control device according to claim 1, wherein a plurality of recesses are provided at each land portion corresponding to the opening portion of the valve body.
5. A hydraulic pressure control device according to claim 1, wherein the recess is formed by machining of the land portion using a T-slot cutter, and working edge of the T-slot cutter is shaped in accordance with shape of the recess.

6. A hydraulic pressure control device, comprising:  
a cylindrical valve body;  
at least one opening portion provided on the valve body;  
a spool valve disposed in the valve body and slidable along an inner surface of the valve body;  
at least one land portion provided at the spool valve and slidable along the inner surface of the valve body; and  
at least one recess provided at a wall of the inner surface of the valve body facing the outer surface of the spool valve;  
wherein the cross-sectional opening area between the recess and the outer surface of the spool valve is continuously decreased in sliding direction of the spool valve from the opening portion.

7. A hydraulic pressure control device, comprising:  
a friction engagement means including a drive rotor and a driven rotor;  
a piston pushing a plurality of clutch discs between the drive rotor and driven rotor and engaging the drive rotor with the driven rotor;  
a hydraulic pressure chamber defined by the hydraulic pressure for changing a pushing force of the piston;  
a hydraulic pressure control mechanism controlling hydraulic pressure to be supplied to the hydraulic pressure chamber;  
a cylindrical valve body provided at the hydraulic pressure control mechanism;  
at least one opening portion provided on the valve body;  
a spool valve disposed in the valve body and slidable along an inner surface of the valve body;  
at least one land portion provided at the spool valve and slidable along the inner surface of the valve body; and  
at least one recess provided at an edge of the land portion of the spool valve;  
wherein cross-sectional opening area between the recess and the inner surface of the valve body continuously changes in sliding direction of the spool valve.

8. A hydraulic pressure control device, comprising:

a friction engagement means including a drive rotor and a driven rotor;

a piston pushing a plurality of clutch discs between the drive rotor and driven rotor and engaging the drive rotor with the driven rotor;

a hydraulic pressure chamber defined by the hydraulic pressure  $p$  for changing a pushing force of the piston;

a hydraulic pressure control mechanism controlling hydraulic pressure to be supplied to the hydraulic pressure chamber;

a cylindrical valve body provided at the hydraulic pressure control mechanism;

at least one opening portion provided on the valve body;

a spool valve disposed in the valve body and slidable along an inner surface of the valve body;

at least one land portion provided at the spool valve and slidable along the inner surface of the valve body; and

at least one recess provided at a wall of the inner surface of the valve body facing the outer surface of the spool valve;

wherein the cross-sectional opening area between the recess and the outer surface of the spool valve is continuously decreased in sliding direction of the spool valve from the opening portion.